
A New Species of a Peltate-Leaved *Begonia* (Begoniaceae) from Vietnam

Nguyen Quang Hieu

Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, U.S.A.
hieu.nguyen@mobot.org

ABSTRACT. *Begonia phuthoensis* H. Q. Nguyen (sect. *Coelocentrum*), a new species from Phu Tho and Thanh Hoa Provinces (Vietnam), is described and illustrated for Begoniaceae. *Begonia cavaleriei* H. Léveillé (sect. *Diploclinium*), a species previously known only from China, is reported for the first time from Vietnam.

Key words: *Begonia*, Begoniaceae, section *Coelocentrum*, section *Diploclinium*, Vietnam.

The genus *Begonia* L., one of three genera in the family Begoniaceae, contains about 1400 species (Doorenbos et al., 1998; Swenson & Tebbitt, 2001; Swensen et al., 2001) of terrestrial or epipetric herbs or occasionally subshrubs or shrubs. Plants of *Begonia* are monoecious or very rarely dioecious. Begonias have unisexual or androgynous inflorescences, and inferior ovaries, with 1(to 3) or 4(to 7) often unequal wings or horns, or more rarely lacking wings. The genus is currently divided into 63 sections (Doorenbos et al., 1998) and is mainly distributed in the forests of the tropics and subtropics of South American, Africa, and Asia.

Gagnepain (1919, 1921) was the first author to describe the begonias of Vietnam. His works collectively include descriptions of 18 species that are not assigned to sections. Most recently, Vietnamese botanist Pham (1999) recognized 46 species and 1 hybrid as occurring in Vietnam. Thirty-four of these species are considered to be native. Doorenbos et al. (1998) listed 11 species as being indigenous to Vietnam. These are distributed among 8 sections. Previous studies of Vietnamese *Begonia* from Vietnam (Gagnepain, 1919, 1921; Pham, 1999) do not include any species with peltate leaves. Two such species, which belong to two different sections, are described herein: *Begonia phuthonensis* sp. nov. and *B. cavaleriei* H. Léveillé.

BEGONIA SECT. *COELOCENTRUM* IRMSCHER

Begonia phuthoensis H. Q. Nguyen, sp. nov.

TYPE: Vietnam. Phu Tho Province: Thanh Son Distr., Xuan Son Mun., Xuan Son National Park, 30 Nov. 2000, shady on limestone-derived soil, 400–600 m, V. X. Phuong, N. K. Khoi, N. Q. Binh & N. Q. Hieu: *Phuong 4041* (holotype, HN; isotype, MO). Figure 1.

Haec species ad *Begoniam umbraculifoliam* maxime accedit, sed ab ea folio in sicco crasse coriaceo margine integro atque inflorescentia quam petiolo brevior distinguitur.

Acaulescent herb, 25–30 cm tall; rhizome prostrate, 5 mm diam., pubescent; stipules persistent, triangular, 5–8 mm long, glabrous except for setose apex. Leaves peltate, clustered at apex; petiole light brown, 25–30 cm long, tomentulose; blades densely hirsute when young, hairs red, mature lamina glossy above, green, 9–18 × 7–12 cm, round at base, apex shortly acuminate, adaxial surface sparsely hispidulous, abaxial surface pilose along the veins, margin sparsely ciliate, venation palmate; veins brown, 7, tertiary veins reticulate. Inflorescences arising directly from the rhizome, bisexual, protogynous, cymose, 5- to 10-flowered; peduncle slender, white-pink, 8–12 cm long; bracts persistent, deep pink, broadly ovate or obovate, 5–8 × 5–6 mm, glabrous, margins bristly. Flowers pink-white, 2–2.5 cm diam. Male flowers with pedicel 0.8–1 cm long; tepals 4, outer 2 broadly ovate, ca. 1 × 0.8 cm, upper half of tepal margin sometimes sparsely ciliate with glandular hairs abaxially; inner 2 ovate, 0.7–0.8 × ca. 0.2 cm, glabrous. Androphore absent. Stamens ca. 21, yellow; anther obovate, apex truncate, dehiscing laterally along sutures, 1–1.5 mm long; filament as long as anther. Female flowers with pedicel 1.5–1.8 cm long; tepals 3, outer 2 broadly ovate, ca. 1 × 0.8 cm, the inner 1 oblong, 0.7–0.8 × ca. 0.2 cm; ovary 1-locular, placentas 3 on the outer wall, subequally

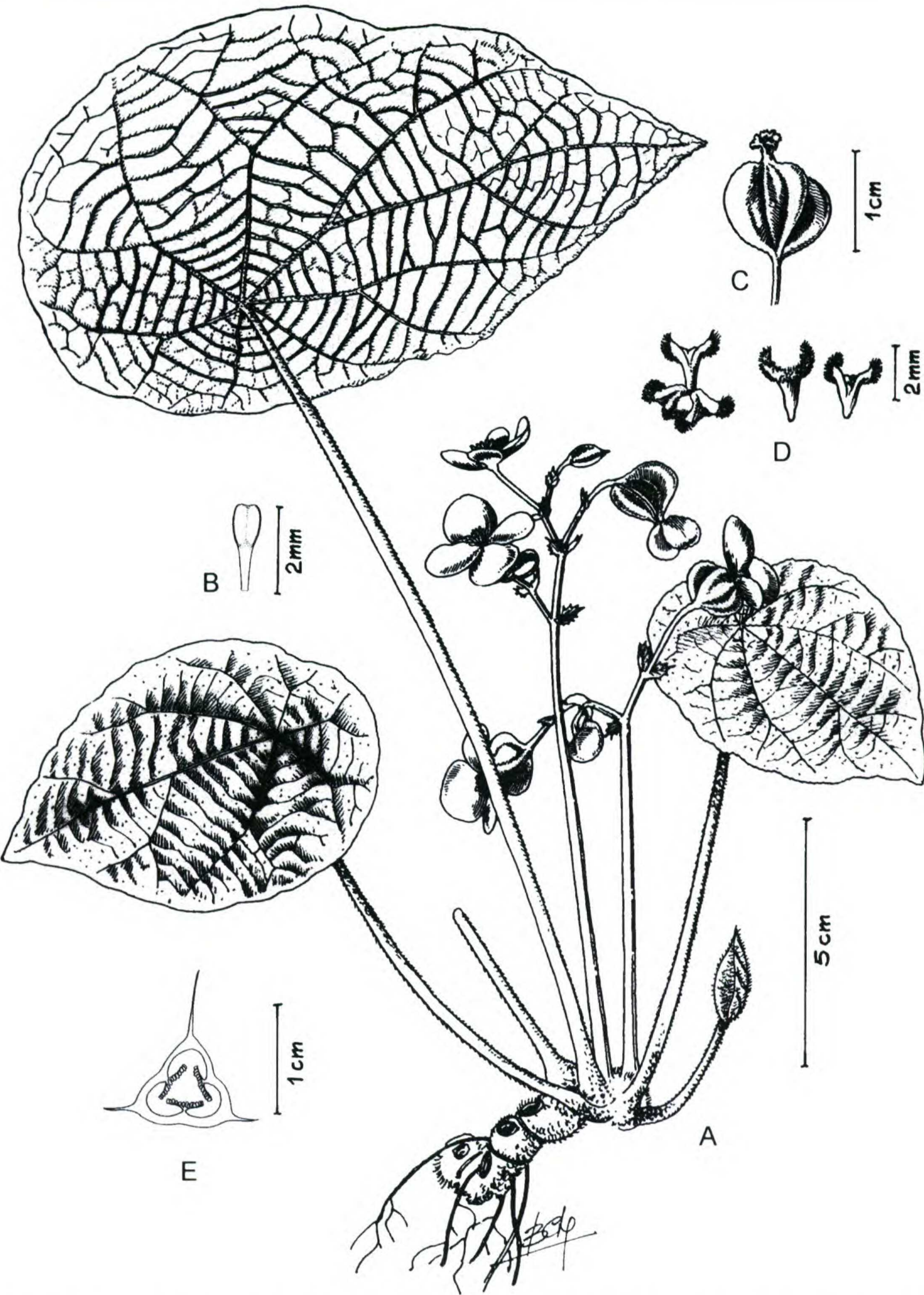


Figure 1. *Begonia phuthoensis* H. Q. Nguyen. —A. Plant. —B. Stamen. —C. Female flowers. —D. Stigmas. —E. Cross section of ovary. (Drawn from the HN holotype, *Phuong et al.* 4041.) Illustration by Bui Xuan Chuong.

bifid; styles 3, ca. 2 mm long, yellow, stigmatic lunate. Fruits white-pink, ca. 1 cm long; wings 3, subequal, rounded, 3–6 mm long, dehiscing between locule and wing; seeds barrel-shaped, pale brown, ca. 0.5 mm long.

Distribution. Endemic to southern Vietnam, with a wide distribution in provinces Phu Tho (Thanh Son District) and Thanh Hoa (Ba Thuoc District).

Begonia sect. *Coelocentrum* Irmscher, to which *Begonia phuthoensis* belongs, contains about 18 species (Doorenbos et al., 1998; Shui et al., 2002), of which only 2 Chinese species, *B. setuloso-peltata* C. Y. Wu and *B. umbraculifolia* Y. Wan & B. N. Chang, have peltate leaves (Ku, 1999; Wan & Chang, 1987). The other Vietnamese begonia in this section, *B. portei* H. L  veill  , does not have peltate leaves. One locule, the main character of the section *Coelocentrum*, distinguishes it from other sections. *Begonia phuthoensis* most closely resembles *B. umbraculifolia* in having leaves with shortly acuminate apices, six or seven palmate veins, and reticulate tertiary veins. The new species differs by its thicker, bullate leaves that lack white spotting, and by its sparsely ciliate margins, densely pilose abaxial veins, and a glabrous peduncle that is shorter than the petiole. By contrast, *B. umbraculifolia* has thin, non-bullate leaves that are white spotted and have irregularly dentate and ciliate margins, sparsely strigose abaxial veins, and a pubescent peduncle that is longer than the petiole.

Paratypes. VIETNAM. **Thanh Hoa Prov.:** Ba Thuoc Distr., Co Lung mun., 17 Apr. 2001, N. T. Hiep, L. Averyanov & P. K. Loc: HAL 1094 (HAST, HN, MO, LE).

BEGONIA SECT. *DIPLOCLINIUM* (LINDLEY) A. DC.

Begonia cavaleriei H. L  veill  , Repert. Sp. Nov. 7: 20. 1909. TYPE: *Dushan s.n.* (holotype, KUN not seen).

This is the first record of *Begonia cavaleriei* from Vietnam. The species was previously known to be endemic to China (Ku, 1999). Section *Diploclinium*, to which *B. cavaleriei* belongs, includes 52 species (Doorenbos et al., 1998), of which only the Chinese endemic *B. josephii* A. DC., *B. peltatifolia* H. L. Li, *B. wangii* Yu, and *B. cavaleriei* have peltate leaves.

Distribution. Vietnam (Ha Giang, Son La, Thanh Hoa Provinces); China.

Habitat. The region of northern Vietnam (Ha Giang Prov.: Quan Ba Distr.) where *Begonia cavaleriei* grows is characterized by extensive ancient, solid marble-like and highly eroded limestone ridg-

es. This begonia grows on damp limestone rocks under a shady, mixed evergreen-deciduous forest canopy, as well as in degraded agricultural fields among limestone rocks and on ridges of exposed limestone under light canopy with many epiphytes and lithophytes.

Specimens examined. VIETNAM. **Ha Giang Prov.:** Quan Ba Distr., Can Ty Mun., D. K. Harder, N. T. Hiep, L. Averyanov, N. Q. Hieu & K. Daria: DKH 4796 (HN, LE, MO); Yen Minh Distr., Lao Va Chai Mun., N. T. Hiep: NTH 3451 (HN, LE, MO). **Son La Prov.:** Yen Chau Distr., Muong Lum Mun., D. K. Harder, N. T. Hiep, P. K. Loc, D. Stone, P. Manos & A. L. Thomas: DKH 576 (HN, LE, MO); Moc Chau Distr., Cho Long, Vu Xuan Phuong 79 (HN). **Thanh Hoa Prov.:** Ba Thuoc Distr., Co Lung Mun., N. T. Hiep, L. Averyanov & P. K. Loc: HAL 948 (HN, LE, MO).

Acknowledgments. The study was supported by the Institute of Ecology and Biological Resources, National Center for Science and Technology, Hanoi, Vietnam. I am grateful to Le Xuan Canh and Nguyen Tien Hiep for their encouragement and advice. I thank Roy Gereau for the Latin diagnosis, Dan Harder, Ihsan Al-Shehbaz, and Charlotte M. Taylor for helping with the English, and Ruth Kiew for providing distribution information. The United States National Science Foundation is thanked for a grant (DEB-9870231 to D. K. Harder) that supported the fieldwork.

Literature Cited

- Doorenbos, J., M. S. M. Sosef & J. J. F. E. de Wilde. 1998. The Sections of *Begonia* including Descriptions, Keys and Species Lists (Studies in Begoniaceae VI). Wageningen Agricultural University, Netherlands.
- Gagnepain, F. 1919. Nouveaux *Begonia* d'Asie; quelques synonymes. Bull. Mus. Hist. Nat. Paris 25: 194–201, 276–283.
- . 1921. B  goniac  es. In: F. Gagnepain (editor), Flore G  n  rale de L'Indochine 2(8): 1095–1120. Masson et Cie, Paris.
- Ku, K. 1999. Begoniaceae. Fl. Reipublicae Popul. Sin. 52(1): 126–268. Science Press, Beijing.
- Pham, H. H. 1999. Begoniaceae. In: H. H. Pham (editor), Cay co Viet Nam. 1: 577–588. Tre Publishing House, Vietnam.
- Shui Yu Min, Ching I Peng & Cheng Yih Wu. 2002. Synopsis of the Chinese species of *Begonia* (Begoniaceae), with a reappraisal of sectional delimitation. Bot. Bull. Acad. Sin. 43: 313–327.
- Swensen, S. M. & M. C. Tebbitt. 2001. Evolution, biogeography and systematics of Begoniaceae. Botany 2001: Plants and People. Albuquerque: 93. [Abstract.]
- , W. L. Clement, L. L. Forrest & M. C. Tebbitt. 2001. *Hillebrandia sandwichensis*: Evolutionary relationships and biogeography. Botany 2001: Plants and People. Albuquerque: 95. [Abstract.]
- Wan Y. & B. N. Chang. 1987. A new species of the genus *Begonia* from Guangxi. Acta Phytotax. Sin. 25(4): 322–323.